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NOTES ON SOME PARASITIC MITES OF THE
SUPERFAMILY PARASITOIDEA, WITH A KEY TO
THE AMERICAN GENERA OF THE LIPONYSSINAE

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The following notes comprise a very small start toward clearing up the confused synonymy of an important economic group of parasitic mites. Some of the species here treated were described almost a century ago before adequate facilities for studying such small arachnids were available, such descriptions being totally inadequate for present day purposes. Then, added to this handicap, we find other difficulties such as the lack of proper knowledge of generic and specific characters, and much confusion due to individual variations.

Eulaelaps stabularis (C. L. Koch) in North America

In recent years there have accumulated in the United States National Museum many lots of mite specimens regarded as representing *Eulaelaps stabularis* (C. L. Koch). Originally this material was identified by comparison with Oudemans's (1913, p. 193) figures and descriptions of the female. Later the identification was confirmed by the writer through the examination of similar specimens taken on *Apodemus sylvaticus* at Torrington, Devonshire, England. There is considerable individual variation among these specimens. In the female the jugularia (Pl. IV) may be very small and poorly sclerotized or large and well sclerotized (even united), the arching of the posterior margin of the sternal plate may be slight or considerable, and the anal plate (Pl. IV) may be strongly or slightly outcurved along its anterior margin.

With the aid of E. W. Baker, I have checked certain characteristics observed to differ in this material taken in America and England, from Oudemans's (1913, p. 192) drawings. Examinations showed that in all female specimens the jugularia are present, that there are only six sternal setae (Pl. IV), that there is an outcurving of the anterior margin of the anal

plate and finally, in all specimens, that the anal plate has but three setae, two adanal and one postanal.

Our American specimens and the four we have from England do not show certain characters reported by Turk (1945, p. 136) for *E. stabularis* in his interesting paper on "Studies of Acari. Second series etc.", such as the presence of two setae on the fixed arm of the chelicera in the female, the absence of the jugularia from certain females, and the presence of five setae on the anal plate. Further, all of the females observed were found to be of a single type as is true of related species of Laelaptinae.

Atricholaelaps virginianus (Ewing) 1925 =
Atricholaelaps glasgowi (Ewing) 1925

Specimens of *Atricholaelaps glasgowi* (Ewing) from various parts of the country and from different hosts show slight variations in size, body shape, relation of sternal width to sternal length, and in degree of sclerotization. Much of this variation is probably due to the age of the specimen when collected or to the method of mounting. Only a careful study of a large series of specimens all being mounted in the same manner would eliminate the confusion of individual variations with those, if any, that may be due to host or geographical distribution. A restudy of the types of *A. virginianus* and *A. glasgowi* has convinced me that they represent a single species. Hence, *virginianus* is here reduced to the synonymy of *glasgowi*.

The Genera *Macronyssus* Kolenati 1858 and
Liponyssus Kolenati 1858

Hirst (1921) made a major contribution to our knowledge of the Liponyssinae by giving good descriptions and excellent drawings (the latter by Terzi) of a large number of species, including some described by Kolenati, for which Hirst had type material. He recognized only one of Kolenati's genera in the Liponyssinae, the genus *Liponyssus*, but gave no description of its type species, *setosus* Kolenati. He did give, however, a good description and drawing of a type specimen (male) of the type species of *Macronyssus*, *Caris longimana* Kolenati 1857. In regard to the male type specimen of *longimanus* Hirst states: "It seems probable to me that this mite is the male of *Liponyssus ellipticus* Kolenati, but it is better

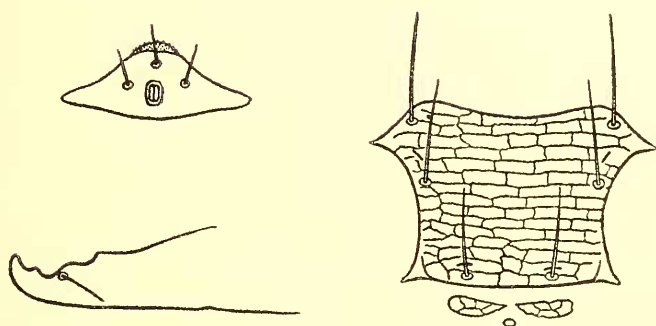


Plate IV. Detail drawings of the female of *Eulaelaps stabularis* (C. L. Koch) made from specimens taken on *Apodemus sylvaticus* in England: At left; sternal region. (Note particularly the paired jugularia at the top and the two pairs of dermal pores, one posterior to anterior setae and one posterior to second pair of setae.) Upper right; fixed chela of chelicera. Lower right; anal plate. (No more than three setae were found on the anal plate of any female.) Drawings not equally enlarged.

to keep the names separate until proof of this is forthcoming."

A comparison of Hirst's excellent drawing of the female of *ellipticus* with that given by Kolenati of the female of *longimanus* shows that in it the shoulders are not developed and the legs are not stout, hence this supposition by Hirst would appear to the writer hardly justified.

Acarologists for many years regarded *Macronyssus* Kolenati as a synonymy of *Liponyssus* Kolenati. Yet Oudemans (1936, p. 274) held *Macronyssus* to be a good genus,—first, because it had page (or line) precedence over *Liponyssus* Kolenati and second, because the species on which the latter monotypical genus was based, *Liponyssus setosus* Kolenati, was totally different from the two species originally included in *Macronyssus*. If the genus *Macronyssus* is considered zoologically equivalent to *Liponyssus*, its status would depend, according to the rules of nomenclature, upon the first revisor rather than upon a page (or line) precedence. In regard to Oudemans' second contention that the type species of *Liponyssus*, *L. setosus*, is very different from *Macronyssus*, there is room for a divergent opinion. He did not give any taxonomic character by which the two genera could be separated.

Kolenati (1858, p. 5) separated his genus *Macronyssus* not only from *Liponyssus* but from the genera of Liponyssinae in the first couplet of his key which is as follows:

"Die Palpen eben so lang als die Fühler, die Vorderfüsse länger

Genus, *Macronyssus* Klti.....1

"Die Palpen kürzer als die Fühler, die Vorderfüsse in gleicher Länge mit dem andern.....2"

This separation by Kolenati would not be sufficient today for a generic identification, hence it appears to the present writer that the status of *Macronyssus* yet remains in doubt, it probably being a synonymy of *Liponyssus* as regarded by Vitzthum (1941, p. 771).

The Genus *Bdellonyssus* Fonseca 1941

Fonseca (1941, p. 262) has divided the genus *Liponyssus* Kolenati, *sensu strictu*, by establishing the genus *Bdellonyssus* with *Liponyssus bacoti* (Hirst) 1913 as type species. Because of our inadequate knowledge of the type species of *Liponyssus*, *L. setosus* Kolenati, as well as that of the species contained in *Macronyssus* Kolenati it is hard properly

to evaluate this proposed new genus. Zoologically this genus appears to be a synonymy of *Leiognathus* G. Canestrini 1885. This name, however, is preoccupied by *Leiognathus* Lacepède 1802, a genus of fishes. For the present *Bdellonyssus* is regarded as a subgenus of *Liponyssus*.

Lepronyssoides sternalis (Hirst), new combination

Fonseca established the genus *Lepronyssoides* in 1941 for *Liponyssus pereirai* Fonseca 1935, a species in which the sternal plate of the female bears a pair of infundibuliform organs and the genitoventral plate a single pair of setae. This genus should be broadened to include *Liponyssus sternalis* Hirst 1921, a species in which the sternal plate of the female also bears a pair of infundibuliform organs, but the genitoventral plate has three pairs of setae.

(*Liponyssus canadensis* Banks 1909) = *Liponyssus sylviarum*
(Canestrini and Fanzago) 1877

Since the publication of my description of *Liponyssus canadensis* Banks (Ewing, 1922, p. 21) an examination of the types taken many years ago has convinced me that this species is a synonymy of *Liponyssus sylviarum* (Canestrini and Fanzago) 1877, which is known under the common name of the northern fowl mite. It is noted that the description published in 1922 was based in part on one lot of thirteen specimens taken from a chicken at Framington Center, Massachusetts. Furthermore, it has been established from the study of many lots of *L. sylviarum* that apparently only a single species of *Liponyssus* is found on chickens in the northeastern part of the United States and southern Canada.

(*Liponyssus americanus* Banks 1906) =
Liponyssus sylviarum (Canestrini and Fanzago) 1877

Recently the type specimens of *Liponyssus americanus* have been reexamined by E. W. Baker and the writer. We found that the characters of the dorsal and the sternal plates could be seen sufficiently well to show that this species is a synonymy of *Liponyssus sylviarum* (Canestrini and Fanzago).

Key to the American Genera of Liponyssinae

- | | |
|--|---|
| 1. Female with two dorsal plates..... | 2 |
| Female with a single dorsal plate..... | 3 |

2. Posterior dorsal plate of female large, covering much of abdomen
Steatonyssus Kolenati 1858
(Type [sy synonymy]: Either *Liponyssus musculi*
(C. L. Koch) 1936 or *Liponyssus vespertilianis* (Dugès))
Posterior dorsal plate of female minute.....*Ophionyssus* Mégnin 1884
(Type: *Dermanyssus natricis* Gervais 1844)
3. Legs all stout; first and second femora with spinelike setae above;
dorsal plate of female almost or entirely covering body
Ichoronyssus Kolenati 1858
(Type: *Ichoronyssus scutatus* Kolenati 1858)
Legs sometimes stout, usually first, third or fourth much more
slender than second; dorsal plate of female usually smaller..... 4
4. Sternal plate of female with a pair of infundibuliform organs
Lepronyssoides Fonseca 1941
(Type: *Lipponyssus pereirali* Fonseca 1935)
Sternal plate of female without infundibuliform organs..... 5
5. Coxa one with a spine-bearing tubercle on ventral surface
Neoichoronyssus Fonseca 1941
(Type: *Lipponyssus wernecki* Fonseca 1935)
Coxa one without a spine-bearing tubercle..... 6
6. Sternal plate of female with a heavily sclerotized and pigmented
band along posterior margin. Male with second pair of legs greatly
enlarged and fourth femur with a very large spine
Chiroptonyssus Augustson 1945
Type: (*Chiroptonyssus texensis* Augustson 1945) =
Liponyssus robustipes Ewing 1925
Sternal plate of female without a sclerotized and pigmented band
along posterior margin. Fourth femur of male without large
spine.....*Liponyssus* Kolenati 1858
(Type: *Liponyssus setosus* Kolenti 1858)
Also with a subgenus.....*Bdellonyssus* Fonseca 1941
(Type of subgenus: *Leiognathus bacotti* Hirst 1913)

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